

**M. Sc. (Biotechnology) Sem-I / M. Sc. (Medical Biotechnology) Sem- I**  
**(CBCS 2018 Course) : SUMMER - 2019**

**SUBJECT : MICROBIOLOGY**

Day : Wednesday  
Date : 03/04/2019

**S-2019-1422**

Time : 10.00 AM TO 01.00 PM  
Max. Marks : 60

**N.B.**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SAME** answer books.

**SECTION – I**

- Q.1** Attempt any **FIVE** of the following: (10)
- a) What is 5 kingdom system of classification of microorganisms?
  - b) Name the extra cellular structures of bacteria.
  - c) What is the chemical composition of archeal membrane?
  - d) Mention the various classes of fungi with examples.
  - e) What is the function of FtsZ?
  - f) What are the osmotolerant organisms? Give two examples.
  - g) What are anaerobes? Give two examples.
- Q.2** Attempt any **TWO** of the following: (10)
- a) How do microorganisms change the pH of their environment? How does the microbiologist minimize this effect when culturing them in the laboratory?
  - b) Discuss the major ways in which archaea differ from bacteria and eucaryotes.
  - c) Mention the method of glucose catabolism in extreme halophiles and thermophiles.
- Q.3** Write short notes on any **TWO** of the following: (10)
- a) Mechanism of binary fission in bacteria.
  - b) Methods of detection of bacterial oxygen responses.
  - c) Bacterial plasmids.

**SECTION – II**

- Q.4** Attempt any **FIVE** of the following: (10)
- a) What are mycorrhiza?
  - b) Name the ecosystems which consist of microbial commensalism.
  - c) Enlist the antibiotics acting on cell wall of bacteria.
  - d) What are the side effects of cephalosporins?
  - e) What is the genomic structure of bacterial and archeal viruses?
  - f) Give the examples of ds DNA viral families.
  - g) What are temperate bacteriophages? Give two examples.
- Q.5** Attempt any **TWO** of the following: (10)
- a) Justify 'aphid is an excellent example of mutualism'.
  - b) Differentiate between exotoxins and endotoxins of bacteria.
  - c) What are commensalistic microorganisms important for human?
- Q.6** Write short notes on any **TWO** of the following: (10)
- a) Explain five ways in which chemotherapeutic agents kill bacterial pathogens.
  - b) Discuss the drugs and mode of action for treatment of superficial mycoses.
  - c) What is rRNA sequencing? Mention its significance.

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